

REMARKS

Applicant expresses appreciation to the Examiner for the courtesy of an interview granted to applicant's representatives Marc A. Berger (Reg. No. 44,029) and Marc A. Sockol (Reg. No. 40,823). The interview was held by telephone on Thursday, July 15, 2004, during which applicant's representatives and the Examiner discussed the Mast and Balogh references as they relate to the claims at issue. The content of the interview follows below.

Applicant has carefully studied the outstanding Office Action. The present amendment is intended to place the application in condition for allowance and is believed to overcome all of the objections and rejections made by the Examiner. Favorable reconsideration and allowance of the application are respectfully requested.

Applicant has canceled claims 2, 15, 28, 37, 54 and 67, and amended claims 1, 3, 14, 16, 27, 29, 36, 38, 45, 50, 53, 55, 66 and 68 to more properly claim the present invention. No new matter has been added. Claims 1, 3 - 14, 16 - 27, 29 - 36, 38 - 53, 55 - 66 and 68 - 80 are presented for examination.

In Paragraph 3 of the Office Action, claims 1 - 80 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Mast, U.S. Patent No. 5,881,287 ("Mast") in view of Balogh et al., US Patent No. 5,893,101 ("Balogh"). Applicant has canceled claims 2, 15, 28, 37, 54 and 67 without acquiescence to the Examiner's reasons for rejection and respectfully submits that rejection of those claims is thus rendered moot.

Distinctions between Claimed Invention and U.S. Patent No. 5,881,287 to Mast in view of U.S. Patent No. 5,893,101 to Balogh et al.

The present invention concerns copy protection of image data that is rendered on a video display device. Such image data can be easily copied by a PrntScrn operation, or another such operation that captures data from a video RAM. The present invention intervenes with such operations by (i) marking pixel data so as to distinguish between proprietary pixel data and non-proprietary pixel data on the video display device, and (ii) modifying captured data so that proprietary pixel data is replaced with substitute pixel data, before the captured data reaches its destination.

Balogh describes an image management method and system, for which full resolution images are archived, and browse-resolution images are displayed. A user can view the browse-resolution images, and order the corresponding full-resolution images. (Balogh / col. 4, lines 19 - 38; col. 8, line

67 – col. 9, line 9) In order to prevent users from copying the browse-resolution images, Balogh applies a watermarking algorithm that adjusts the colors of an image by adding or subtracting an offset to image pixels' blue color values, depending on whether or not the blue color values are below or above half of a maximum color value, respectively. Such adjustment is virtually unnoticeable when the image is displayed on a computer monitor, and vividly apparent when the image is printed. (Balogh / col. 2, lines 1 – 4; col. 10, line 50 – col. 11, line 52; FIG. 5)

On page 3 of the Office Action, the Examiner has indicated that Balogh discloses “*modifying individual pixel datum that is recognized as being protected prior to its being received by the video RAM ...*” Applicant respectfully submits that Balogh does not disclose recognizing individual pixel datum as being protected. Instead, Balogh watermarks an entire image. In distinction, the subject invention involves discriminating between protected and unprotected pixels within the same display, based on pixel color values. For the specific embodiment described in the specification, the subject invention discriminates between pixels for which their blue color value has a 0 in their least significant bit, and pixels for which their blue color value has a 1 in their least significant bit. (Present specification / page 12, line 35 – page 13, line 37; page 20, lines 8 – 25; page 21, line 20 – page 22, line 15; elements 445 and 450 of FIG. 4; elements 550 and 570 of FIG. 5). Such discrimination of pixels within a display is illustrated in FIGS. 3A and 3B of the present specification, in which only certain portions of the display in FIG. 3A are modified in FIG. 3B.

In distinction from the present invention, Balogh does not disclose recognizing pixel data as being protected. Specifically, at col. 11, lines 7 – 30 Balogh discloses adding or subtracting an offset ranging between 10 and 50 to blue color values of some of the pixels of an image. For blue color values below 128 the offset is added to the color values, and for blue color values that are 128 or above, the offset is subtracted from the color values. Thus, for example, a blue color value of 100 is modified upward to 126, and a blue color value of 200 is modified downward to 159. However, after Balogh modifies the blue color values of some of the pixels, it is not possible thereafter to recognize from a pixel's blue color value, whether or not the pixel's original color value was in fact modified. Thus, for example, for a pixel having blue color value of 126, it is not possible to recognize from such value whether the pixel's original blue color value was 126, or whether the original blue color value was 100 and modified to 126. Of course, Balogh does not need to recognize this, since

Balogh's objective is to watermark an image so that it cannot be used for unauthorized purposes.

Mast also does not disclose recognizing pixel data as being protected, based on pixel color values. Instead, at col. 9, line 31 – col. 10, line 39, Mast describes use of callback functions to determine protected image regions. Specifically, Mast recites that “*Each Windows application registers with BITBLOCK.DLL, specifying a callback procedure ... When BITBLOCK.DLL detects that an application ... is attempting to copy anything from the screen ... BITBLOCK.DLL processes through the list of callback functions ... Each callback function returns to BITBLOCK.DLL ... an object which identifies which region of the screen is to be protected.*” Without the assistance of such callback functions, Mast cannot determine, based on pixel color values, which region of the screen is to be protected.

On page 2 of the Office Action the Examiner has indicated that “*Mast teaches data encryption prior to display (see column 7, lines 40 – 47), which meets the recitation of modifying data prior to its being received by the video RAM as amended.*” Applicant has accordingly amended independent method claims 1, 27, 45 and 53, and independent system claims 14, 36, 50 and 63 to incorporate the limitation that recognition of protected pixel data is based on values of least significant bits of the data, which is not disclosed in Mast or in Balogh.

The rejections of claims 1 - 80 in Paragraph 3 of the Office Action will now be dealt with specifically.

As to amended independent method claim 1, applicant respectfully submits that the limitation in claim 1 of:

“*recognizing individual pixel datum as being protected or unprotected based on least significant bits of the datum*”,

is neither shown nor suggested in Mast or Balogh, taken individually or in combination.

Because claims 3 - 13 depend from claim 1 and include additional features, applicant respectfully submits that claims 3 - 13 are not anticipated or rendered obvious by Mast, Balogh, or a combination of Mast and Balogh.

Accordingly claims 1 and 3 - 13 are deemed to be allowable.

As to amended independent system claim 14, applicant respectfully submits that the limitation in claim 14 of:

“a pixel processor recognizing individual pixel datum as being protected or unprotected based on values of least significant bits of the datum ...”,

is neither shown nor suggested in Mast or Balogh, taken individually or in combination.

Because claims 16 - 26 depend from claim 14 and include additional features, applicant respectfully submits that claims 16 - 26 are not anticipated or rendered obvious by Mast, Balogh, or a combination of Mast and Balogh.

Accordingly claims 14 and 16 - 26 are deemed to be allowable.

As to amended independent method claim 27, applicant respectfully submits that the limitation in claim 27 of:

“modifying least significant bits of stored pixel data prior to its being received by the video RAM, thereby generating modified pixel data within which individual pixel datum is recognizable as being protected or unprotected based on values of least significant bits of the datum”,

is neither shown nor suggested in Mast or Balogh, taken individually or in combination.

Because claims 29 - 35 depend from claim 27 and include additional features, applicant respectfully submits that claims 29 - 35 are not anticipated or rendered obvious by Mast, Balogh, or a combination of Mast and Balogh.

Accordingly claims 27 and 29 - 35 are deemed to be allowable.

As to amended independent system claim 36, applicant respectfully submits that the limitation in claim 36 of:

“a digital filter identifying protected pixel data within the stored pixel data, and modifying least significant bits of stored pixel data prior to its arrival at the video RAM on the data bus, thereby generating modified pixel data within which individual pixel datum is recognizable as being protected or unprotected based on values of least significant bits of the datum”,

is neither shown nor suggested in Mast or Balogh, taken individually or in combination.

Because claims 38 - 44 depend from claim 36 and include additional features, applicant respectfully submits that claims 38 - 44 are not anticipated or rendered obvious by Mast, Balogh, or a combination of Mast and Balogh.

Accordingly claims 36 and 38 - 44 are deemed to be allowable.

As to amended independent method claim 45, applicant respectfully submits that the limitation in claim 45 of:

“recognizing individual pixel datum as being protected or unprotected based on values of least significant bits of the datum”

is neither shown nor suggested in Mast or Balogh, taken individually or in combination.

Because claims 46 - 49 depend from claim 45 and include additional features, applicant respectfully submits that claims 46 - 49 are not anticipated or rendered obvious by Mast, Balogh, or a combination of Mast and Balogh.

Accordingly claims 45 - 49 are deemed to be allowable.

As to amended independent system claim 50, applicant respectfully submits that the limitation in claim 50 of:

“a pixel processor recognizing individual pixel data as being protected or unprotected based on values of least significant bits of the datum ...”,

is neither shown nor suggested in Mast or Balogh, taken individually or in combination.

Because claims 51 and 52 depend from claim 50 and include additional features, applicant respectfully submits that claims 51 and 52 are not anticipated or rendered obvious by Mast, Balogh, or a combination of Mast and Balogh.

Accordingly claims 50 - 52 are deemed to be allowable.

As to amended independent method claim 53, applicant respectfully submits that the limitations in claim 53 of:

“modifying least significant bits of protected pixel data so as to mark it as being protected”, and

“recognizing individual pixel datum that is marked as being protected”,

are neither shown nor suggested in Mast or Balogh, taken individually or in combination.

Because claims 55 - 65 depend from claim 53 and include additional features, applicant respectfully submits that claims 55 - 65 are not anticipated or rendered obvious by Mast, Balogh, or a combination of Mast and Balogh.

Accordingly claims 53 and 55 - 65 are deemed to be allowable.

As to amended independent system claim 66, applicant respectfully submits that the limitations in claim 66 of:

“a first pixel processor modifying least significant bits of protected pixel data so as to mark it as being protected”, and

“a second pixel processor recognizing individual pixel datum that is marked as being protected ...”

are neither shown nor suggested in Mast or Balogh, taken individually or in combination.

Because claims 68 - 80 depend from claim 66 and include additional features, applicant respectfully submits that claims 68 - 80 are not anticipated or rendered obvious by Mast, Balogh, or a combination of Mast and Balogh.

Accordingly claims 66 and 68 – 80 are deemed to be allowable.

Support for Amended Claims in Original Specification

Independent claims 1, 14, 27, 36, 45, 50, 53 and 66 have been amended to include the limitation of recognizing pixel data as being protected or not protected. This limitation is supported in the original specification at page 20, lines 17 – 21, regarding pixel processor 450 of FIG. 4; and at page 21, line 38 – page 22, line 4, regarding pixel processor 570 of FIG. 5.

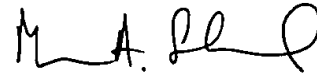
Independent claims 1, 14, 27, 36, 45, 50, 53 and 66 have also been amended to include the limitation of modifying least significant bits of pixel data. This limitation is supported in original claims 2, 15, 28, 37, 54 and 67.

For the foregoing reasons, applicant respectfully submits that the applicable objections and rejections have been overcome and that the claims are in condition for allowance.

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Respectfully submitted,

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